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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,818	08/19/2003	YI-CHEN CHANG	11260-US-PA	1817

31561 7590 09/06/2006

JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE  
7 FLOOR-1, NO. 100  
ROOSEVELT ROAD, SECTION 2  
TAIPEI, 100  
TAIWAN

EXAMINER

PERVAN, MICHAEL

ART UNIT	PAPER NUMBER
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2629

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/604,818	<b>Applicant(s)</b> CHANG, YI-CHEN	
	<b>Examiner</b> Michael Pervan	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama (US 2003/0030382) in view of Kane (US 6,229,508).

In regards to claim 1, Koyama (Figure 2A) discloses a method for driving a current-driven Active Matrix Organic Light Emitting Diode (AMOLED) comprising, updating a current value of a current source (the current is input from source line 1201) to charge a capacitor (1207) of the AMOLED pixel (paragraph 100; a current flows through transistor 1205 causing a voltage to be input and stored on capacitor 1207, therefore a current source is charging a capacitor), turning on a charging path used by the current source to charge the capacitor of the AMOLED pixel (paragraph 100; transistors 1203 and 1204 are turned on and current flows through transistors 1205, then a voltage is input and stored on capacitor 1207, therefore a charging path is turned on), complete the charging of the capacitor (paragraph 100, lines 8-11; voltage is input to capacitor 1207, therefore a voltage is stored and the charge is complete) and cutting off the charging path used by the current source to charge the capacitor of the AMOLED pixel (paragraph 100, lines 14-28; transistors 1203 and 1204 and the current flow stops and transistor 1205 turns off, therefore a charging path is turned off).

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Koyama does not disclose an initial stage of the turning on of the charging path used by the current source to charge the capacitor of the AMOLED pixel, providing a pre-charging signal to the current source to have the capacitor discharged.

Kane (Figures 3 and 4) discloses an initial stage (pre-charge phase) of the turning on of the charging path (by turning on transistor 330) used by the current source (Data, 360;  $V=IR$ , the data line has a resistance and there is a voltage applied so therefore there is a current being applied to the capacitor) to charge the capacitor (302) of the AMOLED pixel (col. 4, lines 31-34), providing a pre-charging signal (pre-charge phase) to the current source to have the capacitor (302) discharged (col. 4, lines 31-34 and lines 54-56; the pre-charge pulse causes a charge to be stored at Node A, then Data is written to the pixel of the previous row, which would then cause the capacitor to discharge).

It would have been obvious at the time of invention to modify Koyama to incorporate the teachings of Kane, an initial stage of the turning on of the charging path used by the current source to charge the capacitor of the AMOLED pixel, providing a pre-charging signal to the current source to have the capacitor discharged, because it improves brightness uniformity by reducing current non-uniformities (col. 2, lines 10-13).

In regards to claim 2, Koyoma does not disclose a pre-charging signal that makes the capacitor to discharge to a pre-determined level.

Kane (Figures 3 and 4) discloses a pre-charging signal (pre-charge phase) that makes the capacitor (302) to discharge to a pre-determined level (col. 4, lines 31-34 and lines 54-56; the pre-charge pulse causes a charge to be stored at Node A, then

Data is written to the pixel of the previous row, which would then cause the capacitor to discharge to what was applied to the Data line (pre-determined level)).

It would have been obvious at the time of invention to modify Koyama to incorporate the teachings of Kane, a pre-charging signal that makes the capacitor to discharge to a pre-determined level, because it improves brightness uniformity by reducing current non-uniformities (col. 2, lines 10-13).

### ***Response to Arguments***

3. Applicant's arguments filed June 23, 2006 have been fully considered but they are not persuasive. Applicant (on page 4 of argument) argued that Kane does not teach a pre-charge signal that is within the scan-on and is in response to a scanning control signal. Examiner respectfully disagrees.

Figure 8 of Kane shows a timing diagram where the pre-charge occurs during scan-on. The scan-on of the pixel occurs when a positive pulse is applied to the scan line (select line) of the pixel. Then, the pre-charge occurs by having a pre-charge signal (positive pulse) applied to the previous row's Autozero line. Therefore, not only does the pre-charge signal occur during the scan-on, it also is in response to a scanning control signal (positive pulse on the select line), since the pre-charge can only occur while the scanning control signal is applied.

Also, Applicant (on page 5 of argument) argued that Kane does not teach "the pre-charging signal makes the capacitor to discharge to a predetermined potential value". Examiner respectfully disagrees.

After the pre-charge phase has occurred, a charge of  $Q_{pc}$  is stored at node C, on the capacitances of the transistors N3, N4, and N5 (Figure 7). During the pre-charge phase, the charge previously stored at node C would be discharged by the pre-charge signal (Autozero line) and charged to  $Q_{pc}$ , which is a predetermined potential value.

### ***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art (Li, US 6,756,741 and Yumoto, US 6,859,193) are deemed relevant since they disclose updating a current value of a current source, turning on a charging path used by the current source to charge a capacitor of the AMOLED pixel, completing the charging of the capacitor and cutting off the charging path used by the current source to charge the capacitor of the AMOLED pixel.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Pervan whose telephone number is (571) 272-0910. The examiner can normally be reached on Monday - Friday between 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MVP  
Aug. 23, 2006

AMR A. AWAD  
PRIMARY EXAMINER

